

Appl. No. 09/991,880
Amendment dated September 14, 2004
Reply to Office Action of September 3, 2004

The following Listing of Claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

1. (Currently Amended) A front derailleur for a bicycle comprising:
a fixed member having a mounting portion configured to be coupled to a frame portion of the bicycle, said fixed member including a first mounting flange, a second mounting flange axially spaced from said first mounting flange and a curved mounting surface having a center axis;
a chain guide having a chain receiving slot to shift a chain of the bicycle in a transverse direction; and
a linkage assembly coupled between said chain guide and said fixed member to move said chain guide between a retracted position and an extended position; said linkage assembly including
a first link pivotally coupled to said fixed member at a first pivot point for rotation about a first pivot axis, said first link having a cable attachment portion,
a second link pivotally coupled to said first and second mounting flanges for rotation about a second pivot axis passing through said first and second mounting flanges that is substantially parallel to said first pivot axis, and
a third link coupled to said chain guide and movably coupled to said first and second links to form a four-bar linkage together with said fixed member,
said mounting portion being configured and arranged relative to the first and second mounting flanges to define a transverse center plane that is perpendicular to said second pivot axis and passes between the first and second mounting flanges and through the center axis of said curved mounting surface with said first mounting flange being located on a first side of said center plane and said second mounting flange being located on a second side of said center plane that is opposite to said first side of said plane, said center plane being equally spaced and parallel to a transverse front plane passing through a forward most edge of said

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curved mounting surface and a transverse rear plane passing through a rearward most edge of said curved mounting surface, said front and rear planes defining a mounting area ~~therebetween~~ therebetween.

said first and second mounting flanges having different axial widths as measured along said second pivot axis with the wider of said first and second mounting flanges being arranged such that a majority of its axial width is located outside said mounting area in an axial direction, said first and second mounting flanges having first and second rear surfaces that are spaced apart by an axial distance larger than an axial space between said front and rear planes.

2. (Currently Amended) A front derailleur for a bicycle comprising:

a fixed member having a mounting portion configured to be coupled to a frame portion of the bicycle, said fixed member including a first mounting flange with a first rearward surface and a second mounting flange with a second rearward surface axially spaced apart from said first mounting flange a first axial distance;

a chain guide having a chain receiving slot to shift a chain of the bicycle in a transverse direction, a first support flange extending laterally therefrom and a second support flange extending laterally therefrom that is axially spaced apart from the first support flange a second axial distance that is substantially equal to the first axial distance; and

a linkage assembly coupled between said chain guide and said fixed member to move said chain guide between a retracted position and an extended position; said linkage assembly including

a first link pivotally coupled to said fixed member at a first pivot point for rotation about a first pivot axis, said fixed member being configured with said first pivot axis being substantially coincident with a center plane of the frame portion that extends substantially parallel to said first pivot axis, said first link being pivotally coupled to one of said first and second support flanges, and

a second link pivotally coupled to said first and second mounting flanges for rotation about a second pivot axis passing through said first and second mounting flanges that is substantially parallel to said first pivot axis, and being pivotally coupled to said first and second support flanges,

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said first and second mounting flanges having different axial widths as measured along said second pivot axis and being arranged such that said first and second rearward surfaces are spaced apart by a first axial distance that is about one half of a maximum axial length of said chain guide,

~~—said second link being supported by said first and second mounting flanges at locations spaced at least as wide as said first axial distance,~~

~~—said first and second support flanges of said chain guide being spaced apart by a second axial distance that is substantially equal to said first axial distance.~~

3. (Original) The front derailleur according to claim 2, wherein said second link has a longitudinal dimension measured along said second pivot axis that is at least about 45.0 millimeters in length.

4. (Original) The front derailleur according to claim 3, wherein said first link has a cable attachment point adapted to fixedly couple a control element thereto.

5. (Original) The front derailleur according to claim 4, wherein said linkage assembly includes a biasing member normally urging said chain guide to one of said retracted and extended positions.

6. (Original) The front derailleur according to claim 5, wherein said fixed member is a tubular clamping member.

7. (Original) The front derailleur according to claim 3, wherein said axial width of said first mounting flange is at least about five times thicker than said axial width of said second mounting flange with said first mounting flange being at least partially aligned with said first link in a direction perpendicular to said first and second pivot axes.

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8. (Original) The front derailleur according to claim 7, wherein said first mounting flange is at least about 21 millimeters thick, as measured along said second pivot axis.

9. (Previously Presented) A front derailleur for a bicycle comprising:
a fixed member having a mounting portion configured to be coupled to a frame portion of the bicycle, said fixed member including a first mounting flange and a second mounting flange axially spaced from said first mounting flange;
a chain guide having a chain receiving slot to shift a chain of the bicycle in a transverse direction; and
a linkage assembly coupled between said chain guide and said fixed member to move said chain guide between a retracted position and an extended position; said linkage assembly including

a first link pivotally coupled to said fixed member at a first pivot point for rotation about a first pivot axis, said first link having a cable attachment portion,

a second link pivotally coupled to said first and second mounting flanges for rotation about a second pivot axis passing through said first and second mounting flanges that is substantially parallel to said first pivot axis, said first pivot axis being spaced farther from a center longitudinal plane of said chain receiving slot of said chain guide than said second pivot axis as measured in a direction perpendicular to the center longitudinal plane of said chain receiving slot, and

a third link coupled to said chain guide and movably coupled to said first and second links to form a four-bar linkage together with said fixed member,

said first and second mounting flanges having different axial widths, as measured along said second pivot axis, said first mounting flange extending axially along said second pivot axis away from said mounting portion of said fixed member to form a first link receiving recess between said first mounting flange and said mounting portion of said fixed member such that said first link is at least partially disposed in said first link receiving recess to be at least partially aligned with said first mounting flange in a direction perpendicular to said first and second pivot axes.

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10. (Original) The front derailleur according to claim 9, wherein said first link includes a link attachment portion that is axially disposed between said third link and said fixed member, relative to said first pivot axis.

11. (Previously Presented) The front derailleur according to claim 1, wherein said axial width of said first mounting flange is at least about five times thicker than said axial width of said second mounting flange with said first mounting flange being at least partially aligned with said first link in a direction perpendicular to said first and second pivot axes.

12. (Previously Presented) The front derailleur according to claim 1, wherein said second link has a longitudinal dimension measured along said second pivot axis that is at least about 45.0 millimeters in length.

13. (Previously Presented) The front derailleur according to claim 2, wherein said fixed member is configured with said first pivot axis being spaced less than about 5.0 millimeters from the center plane of the frame portion, measured perpendicular to said first pivot axis.

14. (Canceled)

15. (Previously Presented) The front derailleur according to claim 9, wherein said axial width of said first mounting flange is at least about five times thicker than said axial width of said second mounting flange with said first mounting flange being at least partially aligned with said first link in a direction perpendicular to said first and second pivot axes.

16. (Previously Presented) The front derailleur according to claim 1, wherein said first mounting flange is at least about 21 millimeters thick, as measured along said second pivot axis.

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17. (Previously Presented) The front derailleur according to claim 2, wherein said first link has a cable attachment point adapted to fixedly couple a control element thereto.

18. (Previously Presented) The front derailleur according to claim 1, wherein said linkage assembly includes a biasing member normally urging said chain guide to one of said retracted and extended positions.

19. (Original) The front derailleur according to claim 18, wherein said fixed member is a tubular clamping member.

20. (Previously Presented) A front derailleur for a bicycle comprising:
a fixed member having a mounting portion configured to be coupled to a frame portion of the bicycle, said fixed member including a first mounting flange, a second mounting flange axially spaced from said first mounting flange and a curved mounting surface having a center axis;

a chain guide having a chain receiving slot to shift a chain of the bicycle in a transverse direction; and

a linkage assembly coupled between said chain guide and said fixed member to move said chain guide between a retracted position and an extended position; said linkage assembly including

a first link pivotally coupled to said fixed member at a first pivot point for rotation about a first pivot axis, said first link having a cable attachment portion,

a second link pivotally coupled to said first and second mounting flanges for rotation about a second pivot axis passing through said first and second mounting flanges that is substantially parallel to said first pivot axis, and

a third link coupled to said chain guide and movably coupled to said first and second links to form a four-bar linkage together with said fixed member,

said mounting portion being configured and arranged relative to the first and second mounting flanges to define a plane that is perpendicular to said second pivot axis and passes between the first and second mounting flanges and through the center axis of said curved

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mounting surface with said first mounting flange being located on a first side of said plane and said second mounting flange being located on a second side of said plane that is opposite to said first side of said plane,

said first and second mounting flanges having different axial widths, as measured along said second pivot axis,

said first mounting flange extending axially along said second pivot axis away from said mounting portion of said fixed member to form a first link receiving recess between said first mounting flange and said mounting portion of said fixed member such that said first link is at least partially disposed in said first link receiving recess to be at least partially aligned with said first mounting flange in a direction perpendicular to said first and second pivot axes.

21. (Original) The front derailleur according to claim 20, wherein said first link includes a link attachment portion that is axially disposed between said third link and said fixed member, relative to said first pivot axis.

22. (Canceled)